RVD 15-13

JOINT MESSAGEFORM

SECURITY CLASSIFICATION [redacted] MAR 25 1964

SPACE BELOW RESERVED FOR COMMUNICATION CENTER [redacted]

LXXVII DOWNGRADED AT 3 YEAR INTERVALS; [redacted] AFTER 12 YEARS
DOD DIRECTIVE 5200.10

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION IMMEDIATE	BOOK	MULTI	SINGLE	AF		
INFO PRIORITY		X				

FROM:

6595th AEROSPACETESTWG VANDENBERG AFB CALIF

TO:

SSD LOS ANGELES, CALIFORNIA

INFO: DOUGLAS AIRCRAFT CO., VANDENBERG AFB, CALIF (MESSENGER)

LOCKHEED MISSILE & SPACE CO., VANDENBERG AFB, CALIF (MSGR)

BELL TELEPHONE LABORATORY, VANDENBERG AFB, CALIF (MESSENGER)

SPECIAL INSTRUCTIONS

VWG 1 cy
VWZD 1 cy
VWZE/LMSC 1 Cy
VWZE 1 Cy Come-back

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SECRET VWZE 24-2-103 . SSD FOR SSZD. DAC FOR STEVE ABELES. LMSC FOR MR. GAVLAK (63-01). BTL FOR BOB PRESKITT. SUBJECT: EIGHT HOUR FLASH LAUNCH REPORT. THIS MSG IN NINE PARTS. PART I. SUMMARY. A VEHICLE CONSISTING OF LV-2A BOOSTER NO. 396 AND SS-01A ORBITAL STAGE NO. 1175 WAS LAUNCHED ON THE FIRST ATTEMPT FROM PT. ARGUELLO LAUNCH COMPLEX 1, PAD 1, AT 1422:48.52 PST ON 24 MAR 1964. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE SS-01A SATELLITE WITH PAYLOAD IN A POLAR ORBIT WAS NOT ACHIEVED DUE TO AN APPARENT SS-01A ELECTRICAL MALFUNCTION AT VECO WHICH RESULTED IN LOSS OF CONTROL DURING THE THRUST INTERVAL. PART II. SEQUENCE OF EVENTS' PRE-LIMINARY VALUES OF SIGNIFICANT EVENTS ARE:

DATE	TIME
24	
MONTH	YEAR
Mar	1964

WRITER

SYMBOL VWZE

TYPED NAME AND TITLE
REGIN L. HUSHBECK, Maj, USAF

PHONE 865-5962 PAGE NR. 1 NR. OF PAGES 7

SECURITY CLASSIFICATION [redacted]

RELEASER

SIGNATURE

TYPED NAME AND TITLE
FRANCIS L. WRIGHT
MAJOR, USAF
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DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

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FROM: [redacted]

6585 AEROSPACETESTWG VANDENBERG AFB CALIF [redacted]

	ACTUAL	PREDICTED
LIFTOFF		
SYSTEM TIME	80568.52	[redacted]
PST[1]	1422:48.52	[redacted]
NOR BURNOUT OF SOLID MOTORS[2]	27.94	27.71
THRUST TERMINATION OF SOLID MOTORS[2]	40.68	40.71
JETTISON OF SOLID MOTORS[2]	60.58	60.00 SEC
LV-2A STEERING INITIATED[3]	92.34	92.00
S-1 COMMAND FOR MECO[4]	148.79	N/A
MECO	148.80	147.23
VECO	167.70	156.23
SEPARATION COMMAND (S-2)	162.59	160.23
SEPARATION COMPLETE	165.15	162.73
ULLAGE ROCKET IGNITION	168.67	165.23
S-01A ENGINE IGNITION	169.8	168.23
S-01A THRUST ATTAINMENT (90%F)	170.9	169.529
S-01A STEERING INITIATED	181.40	191.23
S-01A STEERING TERMINATED	At Fade Out	348.78
S-01A VELOCITY METER ENABLE	Not Enabled	350.198
S-01A ENGINE SHUTDOWN (PREMATURE)	376.43	412.754
VTS VERLORT RADAR LOSS OF TRACK	353	
VTS ACQUISITION BEACON-FADE	441	
VTS TELEMETRY DATA FADE (LINK 1)	452	
VTS TELEMETRY SIGNAL FADE (LINK 2)	462	

PART III. LV-2A PERFORMANCE.

LV-2A PERFORMANCE WAS SATISFACTORY AS DETERMINED FROM TM DATA.

SYMBOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
VWZE [redacted]	2	7	SECRET	

DD FORM 1 MAY 65 173-1 [redacted]

☆ U. S. GOVERNMENT PRINTING OFFICE: 1961—596655

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION [redacted]

FROM:

6595 AEROSPACETESTWG VANDENBERG AFB CALIF

MECO OCCURRED AT 148.80 SEC AS A RESULT OF A RTL COMMAND. SOLID MOTOR PERFORMANCE AS BASED ON TM DATA WAS NOMINAL. 17 TO 20 CPS VIBRATIONS WERE RECORDED FROM 120 TO 144 SECONDS RESPECTIVELY WITH AN APPROXIMATE 3.7 G PEAK-TO-PEAK LEVEL AT 138 SECONDS. PART IV. COMMAND GUIDANCE. THE PERFORMANCE OF THE COMMAND GUIDANCE SYSTEM WAS SATISFACTORY. MECO WAS INITIATED BY GROUND GUIDANCE AT 148.80 SEC. SEPARATION COMMAND(S2) WAS NEAR NOMINAL AT 162.59 SEC. AN INDICATION OF VEHICLE ABNORMALITY OCCURRED AT 230.85 SEC, WHEN BEACON AGC AND MAGNETRON CURRENT INDICATED POOR COMMUNICATION IN THE SPACE/GROUND LINK. DESPITE POOR GUIDANCE COMMUNICATION, WHICH PERSISTED, STEERING ORDERS REMAINED LIGHT. THE VEHICLE DID NOT RESPOND TO MAXIMUM STEERING ORDERS FROM 256 SEC TO FINAL LOSS OF TRACK WHICH OCCURRED AT APPROXIMATELY 400 SEC. PART V. SS-01A PERFORMANCE. AN ELECTRICAL POWER PROBLEM APPEARS TO HAVE RESULTED IN THE INABILITY OF THE GUIDANCE AND CONTROL SYSTEM TO FUNCTION PROPERLY, SUCH THAT THE THRUST VECTOR COULD NOT BE PROPERLY ORIENTED AND A COMPLETE LOSS OF CONTROL RESULTED DURING THE THRUST INTERVAL. EXCEPT FOR THE ELECTRICAL TRANSIENTS DISCUSSED BELOW, SEPARATION, IGNITION, AND OTHER LESS CRITICAL EVENTS OCCURRED PROPERLY. ENGINE SHUTDOWN OCCURRED PREMATURELY AFTER 206.4 SEC OF BURN (243.2 NOMINAL) APPARENTLY DUE TO THE LOSS OF CONTROL. THE PREMATURE SHUTDOWN AND APPARENT MISDIRECTION OF THRUST PRECLUDED ORBIT ATTAINMENT. THE INTEGRITY OF THE SS-01A VEHICLE AND SUBSYSTEM APPEARS TO HAVE BEEN PROPERLY MAINTAINED DURING THE POWERED

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VWZE	3	7	[redacted]	

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U.S. GOVERNMENT PRINTING OFFICE: 1961—596638

[redacted]

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION: [redacted]

FROM:

6595 AEROSPTESTING VANDENBERG AFB CALIF [redacted]

PHASES OF THE LV-2A BOOST. NO SIGNIFICANT ELECTRICAL TRANSIENTS OCCURRED UNTIL VECO WHEN THE UNREGULATED 28 V CURRENT MONITOR SHOWED A MODERATE INCREASE OF BUS CURRENT FROM 19 AMP TO 29 AMP. THIS NEW LEVEL OF CURRENT DRAIN REMAINED CONSTANT UNTIL 1.5 SEC AFTER VECO WHEN THE CURRENT INCREASED BEYOND THE 50 AMP LIMIT OF THE TELEMETRY MEASUREMENT. OVER THE NEXT 4.1 SEC THE CURRENT WAS INDICATED TO BE PREDOMINANTLY BEYOND BAND EDGE WITH SOME ERRATIC EXCURSION WITHIN THE BAND. AT 162.55 SEC, WHICH WAS NEARLY COINCIDENT WITH THE START OF SEPARATION, THE CURRENT ERRATICALLY DECREASED SUCH THAT WITHIN 0.8 SEC IT WAS APPROXIMATELY 27 AMPS WHERE IT REMAINED UNTIL ENGINE IGNITION EXCEPT FOR TWO MODERATELY HIGH CURRENT TRANSIENTS AT SEPARATION COMPLETE AND AT THE TIME OF ULLAGE IGNITION. FROM THE TIME OF ENGINE IGNITION AT 170.91 SEC UNTIL 227.7 SEC THE CURRENT ERRATICALLY INCREASED BEYOND TELEMETRY RANGE WHERE HAD AN AVERAGE VALUE OF 21 AMP WITH MODERATE FLUCTUATIONS. AT 227.7 SEC THE CURRENT ERRATICALLY INCREASED BEYOND TELEMETRY RANGE WHERE IT REMAINED FOR APPROXIMATELY 5 SEC UNTIL 233.9 SEC. AFTER 233.9 SEC THE CURRENT RETURNED TO AN INDICATION OF 21 AMPERES (A NORMAL VALUE) THEN SLOWLY DECREASED TO ABOUT 12 AMPERES BY DATA FADE. THE HIGH CURRENT DRAINS WERE REFLECTED BY DROPS IN THE UNREGULATED 28 V BUS VOLTAGE. OTHER BUS VOLTAGES EXCEPT FOR THE PLUS OR MINUS 28 V REG APPEARED TO REMAIN AT SATISFACTORY LEVELS. ALMOST COINCIDENT WITH THE INITIAL EVIDENCE OF THE SHORT AT VECO, THE PLUS OR MINUS 28 V REGULATED VOLTAGES DROPPED TO APPROXIMATELY

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VWZE	4	7	[redacted]	

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GPO PRINTING OFFICE: 1961 — 595655

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION [redacted]

FROM:

6595 AEROSPACE TRAINING AFB CALIF [redacted]

PLUS 15 V AND MINUS 24 V (NEARLY TO TELEMETRY BAND EDGE) AND REMAINED AT ABOUT THIS LEVEL EXCEPT FOR A RECOVERY TO NEAR NOMINAL DURING THE INTERVAL FROM 168.3 TO 168.8 SEC. ALTHOUGH NOT APPARENTLY RELATED TO LATER ELECTRICAL PROBLEMS IT IS NOTEWORTHY THAT A MODULATION EQUIVALENT TO 7 AMPS AT THE COMMUTATOR RATE WAS NOTED ON THE CONTINUOUS MONITOR OF CURRENT DURING TERMINAL COUNT UNTIL 8.4 SEC PRIOR TO LIFTOFF. ALTHOUGH NO POSITIVE RELATION HAS BEEN ESTABLISHED CONSIDERABLE SS-01A SWITCHING NORMALLY OCCURS IN RESPONSE TO THE VECO SIGNAL-GYRO UNCAGE, JETTISON OF HORIZON SENSOR FAIRINGS, ARM SEPARATION RELAYS, SWITCH ROLL GYRO TO LOW GAIN, AND BACKUP FOR DISARM OF SS-01A DESTRUCT. CONTROL SYSTEM DATA GENERALLY INDICATES THAT THE PLUS OR MINUS 28 V REGULATED WHICH IS CRITICAL TO THE OPERATION OF THE GUIDANCE AND CONTROL COMPONENTS WAS NOT AT A SATISFACTORY LEVEL TO PERMIT NORMAL OPERATION OF THE SYSTEM. SOME CONTROL ACTIVITIES APPEAR TO HAVE INTERMITTENTLY OCCURRED IN THAT CONTROL GAS WAS EXPENDED. THE ATTITUDE BEHAVIOR OF THE VEHICLE IS AS YET UNDEFINED HOWEVER THE ACCELEROMETERS GENERALLY INDICATE THAT NO HIGH RATES WERE EXPERIENCED UNTIL AT 364 SEC, APPROXIMATELY 12 SEC BEFORE THE ENGINE SHUT DOWN PREMATURELY. THERE IS EVIDENCE OF A HIGH RATE TUMBLE DEVELOPING AFTER THIS TIME. THE GYRO ACTUATOR POSITION DATA HAVE BEEN INTERPRETED TO INDICATE THAT PLUS OR MINUS 28 V REGULATED WAS NOT ADEQUATELY SUPPLIED TO THE IRP FLIGHT CONTROL SYSTEM FOR MOST OF THE TIME AFTER VECO. AT THE TIME OF TELEMETRY

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U.S. GOVERNMENT PRINTING OFFICE: 1951—[redacted]

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION [redacted]

FROM:

6595 AEROSPTESTWG VANDENBERG AFB CALIF [redacted]

SIGNAL FADE AT VIS, THE ORBITAL TIMER WAS SET AT 5440 SECONDS (SERP 263) IN THE PRE-RESET ENABLE POSITION, IN THE INCREASE MODE, RE-ENTRY DISABLED AND THE RE-ENTRY SELECTOR SET WITH COMMAND 5 IN. PART VI. SPACE GROUND COMMUNICATIONS. TELEMETRY DATA FROM THE ASCENT LINK WAS SATISFACTORILY RECEIVED UNTIL 231 SEC WHEN MODULATION OF THE SIGNAL STRENGTH OCCURRED DUE TO THE CHANGING ATTITUDE OF THE VEHICLE. THE CONTINUATION OF THIS MODULATION UNTIL SIGNAL FADE CAUSED SEVERAL DATA DROPOUTS. VERLORT RADAR TRACK OF THE S-BAND BEACON WAS SATISFACTORY UNTIL 239.5 SEC WHEN MULTIPLE DROPOUTS BEGAN DUE TO APPARENT VEHICLE TUMBLING. PART VII. COUNTDOWN. THE COUNTDOWN WAS INITIATED ON SCHEDULE AT 0430 PST ON 19 MAR 1964 AND PROCEEDED TO LIFTOFF WITH THREE HOLDS IMPOSED. HOLD NUMBER ONE WAS IMPOSED AT T-44 MINUTES FROM 1347 TO 1400 TO INCREASE ELECTRICAL POWER TO PROVIDE PROPER LV-2A GYRO HEATER CYCLING. HOLD NUMBER TWO WAS IMPOSED IN PHASE III OF THE TERMINAL COUNTDOWN FROM 1404 TO 1406 TO RECYCLE STL GUIDANCE LOOP CHECKS. HOLD NUMBER THREE WAS IMPOSED IN PHASE V FROM 1417 TO 1421 WHEN THE SS-01A FUEL SNIFFER INDICATED A LEAK. EVALUATION INDICATED NO LEAKS. SEVERAL TASKS WERE DELAYED TO PROVIDE ADDITIONAL TIME TO COMPLETE NORMAL R-1 DAY CHECKS. HARDWARE COMPATIBILITY PROBLEMS WERE ENCOUNTERED DURING INSTALLATION OF THE SS-01A S-BAND BEACON. DUE TO RAIN IN THE PAD AREA A METHOD OF LEAVING THE PAYLOAD RAINCAP ON AND THEN REMOVING IT BY LANYARD PULL-AWAY AT LIFTOFF WAS DEVELOPED DURING THE COUNT-

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WIZE	6	7	[redacted]	

DD FORM 1 MAY 66 173-1

U. S. GOVERNMENT PRINTING OFFICE: 1961—896688

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION: [redacted]

FROM:

6595 AEROSPTESTRG VANDENBERG AFB CALIF [redacted]

DOWN. THE SS-01A ENGINE WAS FOUND TO BE IN THE MAXIMUM PITCH POSITION DURING TASK 9 AND HAD TO BE MANUALLY RETURNED TO CENTER. PART VIII. AEROSPACE GROUND EQUIPMENT. THE AEROSPACE GROUND EQUIPMENT FUNCTIONED SATISFACTORILY TO SUPPORT CHECKOUT AND LAUNCH OF THE VEHICLE EXCEPT FOR FAILURE OF THE UMBILICAL MAST TO RE-TRACT AT LIFTOFF. PART IX. PAD DAMAGE. THE PAD DAMAGE WAS VERY EXCESSIVE DUE TO LACK OF SHIELDING OF THE BASE OF THE LAUNCHER. PAD TURNAROUND TIME WILL BE AFFECTED.

DOWNGRADED AT 3 YEAR INTERVALS.
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

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SYMBOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
VWZE	7	7	[redacted]	

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☆ U. S. GOVERNMENT PRINTING OFFICE: 1961—599888